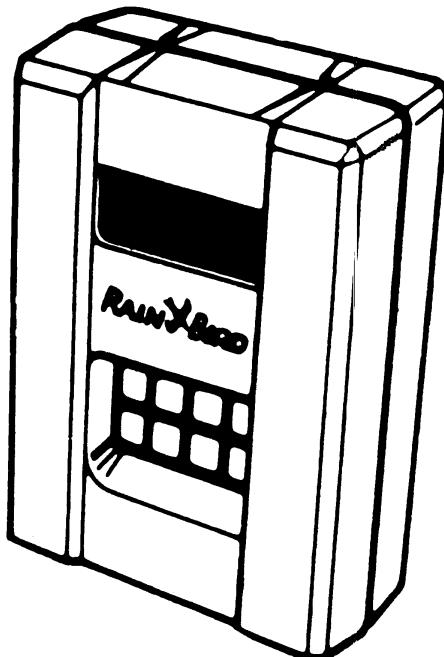




Dual Program Sprinkler Timer

Owners Manual / Operating Guide / Installation Guide



For Model Numbers:

PC-204

4 Station

PC-206

6 Station

PC-204-PS

4 Station with Pump Start

PC-206-PS

6 Station with Pump Start

Rain Bird National Sales Corporation
Customer Support Center
6991 E. Southpoint Rd., Bldg. #1
Tucson, AZ 85706
1-800-RAIN-BIRD

Introduction

Congratulations! Your new dual program Rain Bird sprinkler system timer makes automated watering a reality for you. The state-of-the-art features will enable you to precisely program how you want your sprinkler system to operate.

The Rain Bird PC-200 series timer allows you to match your landscapes watering needs in four ways:

Dual programs

You may require different frequencies of watering in different parts of your yard. For example, your lawn may require watering three times per week but your garden may only need water twice per week. This water-conserving feature is called "Dual Programs" and it allows you to assign any station to either the "A" program or the "C" program or both programs. Each program can have its own watering day schedule, its own daily start times, and each station can have different run times on each program.

Flexible watering days

In this era of water restrictions, you may have to water every other day and other times you may have to water only on certain days. Fortunately, Rain Bird PC-200 series timers have a built-in program called "Flexible Watering Days" which allows you to switch from cycling (i.e. every third day) to day of the week watering (i.e. Mon-Wed-Fri). The "A" and "C" programs can have different watering cycles or watering days.

Watering run time per station

Since different types of landscapes -lawns, shrubs, flowers, ground cover, etc.- require different amounts of water, Rain Bird timers are designed to allow each station to water its own length of time, from 0 minutes to 99 minutes in one minute increments. A "station" is made up of one valve plus the sprinklers that the valve operates. If you want to assign a station to run on both the "A" program and on the "C" program, you can assign different amounts of run time for the same station.

Daily start times per program

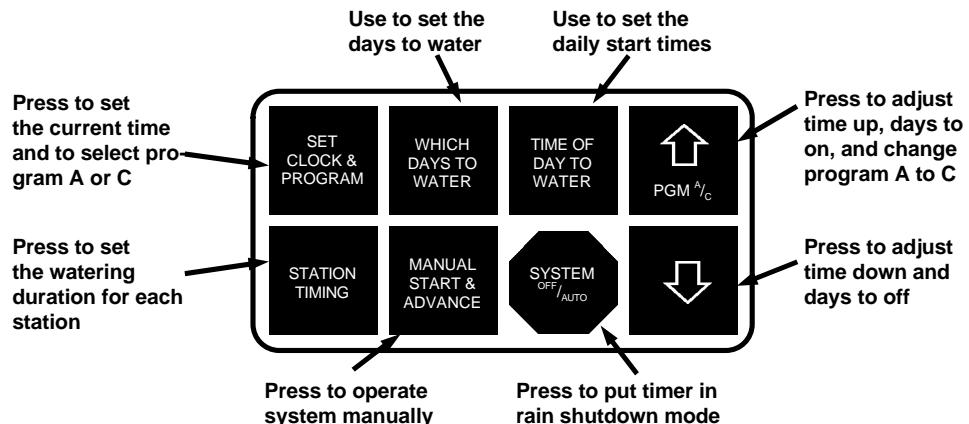
The PC-200 timer can start watering the "A" or "C" programs once, twice or three times per day, at any hour you select. The "A" start times can be different from the "C" start times. For example, the "A" program could start once per day at 8:00 am and the "C" program three times a day at 7:00 a.m., 2:00 p.m., and 7:00 p.m. The timer keeps track of the particular start times for each day.

Special features

- Solid state design for digital accuracy,
- A 9-Volt battery (not included) holds programs for up to 24 hours and remembers time during a power outage,
- A built-in emergency program of 10 minutes per day, every day for each station automatically starts if the power is out and the battery is dead,
- A System Off button to shutdown the system in the event of rain.

Important: The PC-204 and PC-206 are designed for use with standard 24 volt AC electric valves regardless of brand. However, some older brass valves and commercial duty valves have power requirements higher than this timers capability (1/2 amp for PC-204 and PC-206 and 3/4 amp for PC-204-PS and PC-206-PS) and should not be

KEYPAD FUNCTIONS



If you're already familiar with this Rain Bird timer, here's a quick guide to what each key does when programming the PC-200 series. For step by step explanations, turn to the following pages. **Note:** use the ARROW keys to adjust any of the following func-

Quick Programming Guide

SET
CLOCK &
PROGRAM

Sets current time and program

- Press once to set current day
- Press again to set hours
- Press again to set minutes
- Press again to select program

d	01
h	12
11	00
P	A

WHICH
DAYS TO
WATER

Sets the day watering schedule

- Press once to set Sunday
- Press again to set Monday
- Press again to set Tuesday
- And repeat this for other days
- To water on a variable day cycle (like every 3rd day), press the down arrow and hold.

1	R	0	1
2	R	0	F
3	R	0	F
4	R	0	F
4	R	--	

TIME OF
DAY TO
WATER

Sets up to three start times per

- Press once to set 1st start time
- Press again to set 2nd start time
- Press again to set 3rd start time

1	R	0	8
2	R	1	2
3	R	1	8

STATION
TIMING

Sets run time per station from 1 to 99 minutes

- Press once to set station 1
- Press again to set station 2
- Repeat for other stations
- To remove a station from watering on a program, set time to "00"

1 R 99
2 R 15

3 R 00

MANUAL
START &
ADVANCE

Allows watering cycle or station to be manually started

- Press once to set station 1
- Press again to advance

1 R 99
2 R 15

SYSTEM
OFF/AUTO

**Cancels any in-process operation and turns system off during rain
(Last digit flashes)**

Mounting Instructions

Location

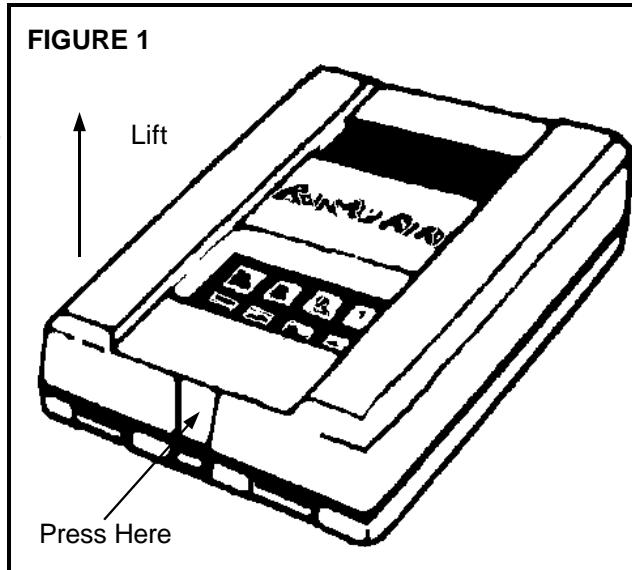
Select an indoor location within six feet of a grounded electrical outlet.

CAUTION! *This is not an outdoor timer. Do not mount it where it is exposed to water, moisture or direct sunlight, as failure may occur.*

Tip! *To avoid power fluctuations, do not put the timer on a circuit controlled by a switch, or on a circuit supplying high power equipment.*

Cover Removal

Remove the front cover by depressing the bottom tab and lifting as shown in figure 1.



Mounting

Mount the timer to a wall using two #10 screws installed at centers $3\frac{13}{16}$ " apart at eye level. Use plastic anchors to secure screws if the wall is plastic or masonry. Leave the screw heads extended $\frac{1}{4}$ " and hang the Rain Clock using the keyhole slots on the back. Install a third screw through the mounting hole (located below the battery area)

Wiring Instructions

Running the sprinkler wire (wire not included)

For runs of less than 800 feet long, use 18-gauge plastic jacketed "thermostat" or "direct burial" control wire, installed alongside your piping runs. Thermostat wire uses a PVC jacket and is suitable for most indoor and underground installations. Direct burial wire is similar to thermostat wire, except the jacket is made of a UV resistant material, and it is suitable for any indoor or outdoor installation, including sunlight exposure.

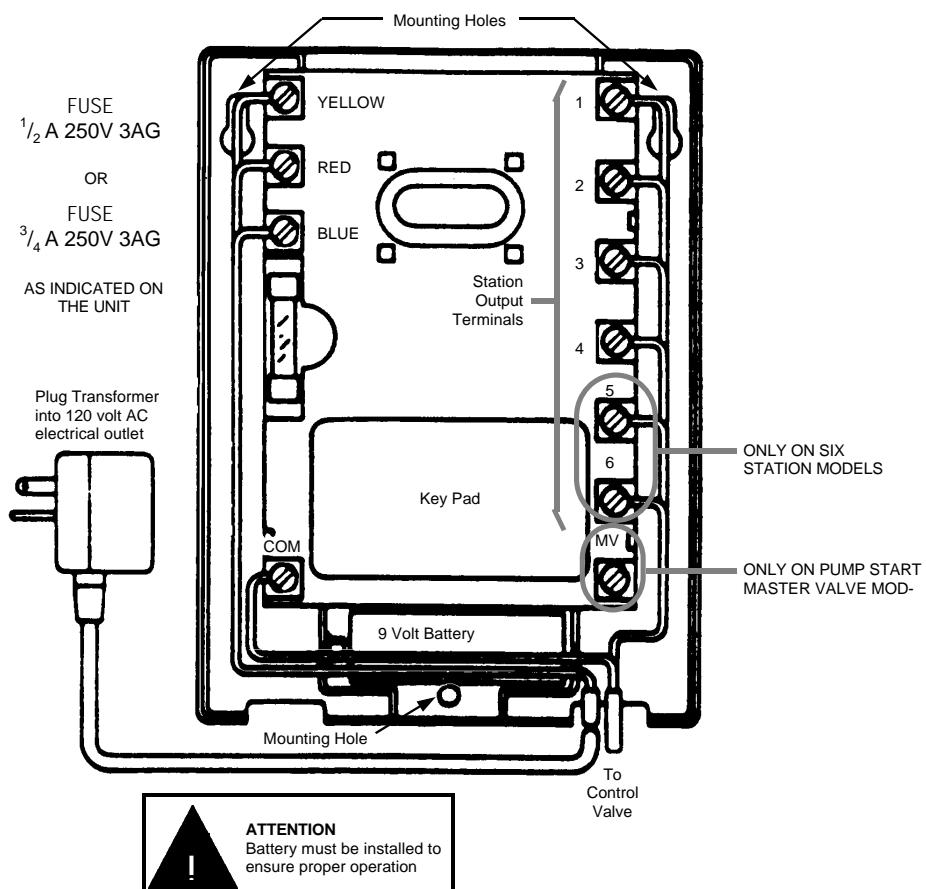
Note: Some areas require by code, the use of UL approved cable. Most "direct burial" wires have this approval. Most thermostat wires do not.

Your dealer can provide this wire in 2,3,4,5,6,7 and 8-wire color-coded strands. The number of valves plus one extra wire for the common wire determines the number of strands. For example, in a three valve installation, a four strand wire is needed.

Tip! Some thermostat wire referred to as "sprinkler wire" may be smaller than the 18-gauge wire we recommend. This wire will not have a UL listing, nor the capacity to run long distances. In addition, it is more likely to weaken. Be aware of its shortcomings if this is your choice.

All outdoor wiring connections must be sealed with a water-tight connector. Wire run

FIGURE 2: WIRING CONNECTIONS



Connecting to the valves

Each valve connects to the timer through two wires. One wire from each valve solenoid must connect to the output terminal of the timer through a color-coded strand. This is the "HOT" connection. Connect valve #1 to terminal #1, valve #2 to terminal #2, etc. (Figure 2, previous page).

The second wire must connect to the (COM) common terminal of the timer. This is the COMMON connection. If the valves are grouped closely, it is easier to join the common wires from each valve and run one wire (usually the white wire) to the timers common terminal.

Note: Only one valve may be connected to each station's output terminal.

Transformer and Battery

Connect the transformer

Refer to Figure 2 and connect the yellow wire to the terminal marked "YELLOW", red wire to "RED," and blue wire to "BLUE".

Tip! To avoid short-circuiting the transformer, always connect the wires to the terminal before plugging in the transformer.

Install the battery

A 9-volt battery (not included) is used to maintain the programming for up to 24 hours if a power failure should occur. The battery will not allow the timer to open any valves. The timer will remember the approximate clock time and all programs. If the power outage occurred during a watering cycle, that cycle will resume and be completed, as will any missed cycles.

If the battery is dead, none of the programming will be retained. In this event, the timer will revert to the emergency back-up program, which waters once per day, every day, starting 8 hours after the power is restored. All programming needs to be reset.

Using the pump start circuit

Pump start or master valve capability is available only on the PC-204-PS and PC-206-PS models. This circuit allows the timer to be used in conjunction with a "pump relay switch" (Rain Bird model PCR-1) which when activated by the timer, will in turn activate the pump. The pump start circuit can also be used to operate a standard 24 volt "master valve."

The hot wire of the relay switch connects to the terminal marked MV. The common wire connects to the regular system common terminal. See the pump relays instructions for details.

Caution! Be sure the total current draw of the relay switch plus the station valve doesn't exceed 650 milliamps. If it does, your fuse will blow.

Tip! To avoid possible pump damage during an emergency backup schedule, wire each unused station to a station being used. This prevents the pump from operating

How to set the current time

STEP 1: Set current time and select program “A” or “C”

The PC-200 Series holds a seven day program which repeats after the seventh day. The days of the week relate to a number as follows:

SET
CLOCK &
PROGRAM

Day of the week>	Sun	Mon	Tue	Wed	Thur	Fri	Sat
Display Number>	1	2	3	4	5	6	7

This timer displays in military time. To convert from AM/PM time to military time, see the reference chart at the bottom of this page.

1-A: Set the current day of the week

Example To set today to Tuesday adjust the display to read “d 3.”

Press
Once

SET
CLOCK &
PROGRAM

and adjust
the right
digit
by pressing:

UP
PGM \wedge_c

OR

DOWN

d 3
Day Tues.

1-B: Set the current hour of the day

Example To set the hour to 2:00 p.m. adjust the display to read “h 14.”

Again
Press

SET
CLOCK &
PROGRAM

and adjust
the right
two digits by
pressing:

UP
PGM \wedge_c

OR

DOWN

h 14
Hour 2:00 p.m.

1-C: Set the current minutes of the hour

Example To set the minutes to 20 adjust the display to read “n 20.”

Again
Press

SET
CLOCK &
PROGRAM

and adjust
the right
two digits by
pressing:

UP
PGM \wedge_c

OR

DOWN

n 20
Minutes :20

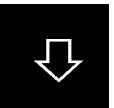
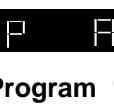
Normal	Military	Normal	Military
12:00 Midnight	0000	12:00 Noon	1200
1:00 AM	0100	1:00 PM	1300
2:00	0200	2:00	1400
3:00	0300	3:00	1500
4:00	0400	4:00	1600
5:00	0500	5:00	1700
6:00	0600	6:00	1800
7:00	0700	7:00	1900
8:00	0800	8:00	2000
9:00	0900	9:00	2100
10:00	1000	10:00	2200
11:00	1100	11:00	2300

How to select a program

1-D: Select the “A” or “C” program

This step selects which program will be set by completing steps 2 to 4 on the previous pages.

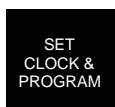
Example To select program A, adjust the display to read “P A.”

Again Press  and adjust the right two digits by pressing:  OR   Program “A”

Example To select program C, adjust the display to read “P C.”


Program “C”

1-E: To display the current time

Again Press  and the current or just programmed time should appear: 
Time 2:20 p.m.

Tip! Pressing the SET CLOCK key during any other programming operation will return the display to show the time of day.

How to use two programs in your sprinkler system

More often than not, different areas of your yard need different amounts of water. For example, a station watering in a shady area should apply less water than stations operating in sunny areas. Shrubs require less frequent watering than lawns while tropical plants require more watering. Drip irrigation needs long but infrequent watering.

Dual programs permit your stations to be assigned to one or both programs. Each program is completely separate, watering its own days, its own times and its own durations.

Here's some suggestions on how to divide your yard by watering need:

Program A	Program C
Backyard	Frontyard
Sunny areas	Shady areas
Lawn areas	Shrub areas
Flat areas	Hilly areas
Normal sprinklers	Drip irrigation

Note: Because program “A” is preset at the factory we recommend setting program “A” first as your primary program and then set program “C.”

How to set the watering days

STEP 2: Set the watering day schedule

When shipped from the factory, the PC-200 series is preset to water every day on program "A" and no days on program "C."

WHICH
DAYS TO
WATER

The PC-200 series can be set to water either on specific days of the week (i.e. Mon-Wed-Sat) or on an interval of days (i.e. every third day). The "A" program and the "C" program can have different schedules, but both have to operate the same way: specific days or day intervals.

2-A: Watering on specific days

Remember, days of the week are shown as the first digit in the display, and the program is the second digit.

Press
Once



and set Sun-
day to "on" by
pressing:



1 R01

Sunday On
Program A

or set Sunday
to "off" by
pressing:



1 R0F

Sunday On
Program A

To advance through each day of the week, repeat this step.

Press
Once



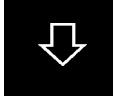
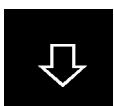
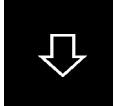
and set Mon-
day to "on" by
pressing:



2 R01

Monday On
Program A

2-B: Watering on an interval of days

Press	WHICH DAYS TO WATER	and set day 1 to "on" by pressing:			Day 1 On	Program A
Now Press	WHICH DAYS TO WATER	and set day 2 to "off" by pressing:			Day 2 Off	Program A
Now Press	WHICH DAYS TO WATER	and set day 3 to "off" by pressing:			Day 3 Off	Program A
Now Press	WHICH DAYS TO WATER	and remove day 4 through day 7 by pressing and holding for 3 seconds:			Day 4 None	Program A

This is now set to water every third day. The timer waters on day 1, does not water on day 2 and 3, and then goes back to day 1. The same procedure is used to set watering in other cycles (such as every fifth day). See reference chart 2 below for detailed schedules.

Reference Chart 2: Display Settings for Interval Watering

Desired watering cycle	Day Number and Setting						
	1	2	3	4	5	6	7
Every day	On	--	--	--	--	--	--
Every other day	On	Of	--	--	--	--	--
Every third day	On	Of	Of	--	--	--	--
Every fourth day	On	Of	Of	Of	--	--	--
Every fifth day	On	Of	Of	Of	Of	--	--
Every sixth day	On	Of	Of	Of	Of	Of	--
Once per week	On	Of	Of	Of	Of	Of	Of

2-C: Return to a specific day watering

To return to day watering from interval watering, you must first advance to the first station showing “- -” in the display.

Press	WHICH DAYS TO WATER	and adjust the day showing “- -” to on by pressing for 2 seconds:			Day 4 On	Program A
-------	---------------------	---	---	--	---------------	-----------

How to set the start times

STEP 3: Set the time of day to start watering

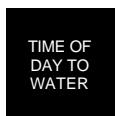
TIME OF
DAY TO
WATER

The PC-200 series can be set to water once, twice or three times per day on each program. All stations on a program will run in sequence at each start time. For example, if stations 1,2,& 3 are on program A, and program A has start times of 8:00 a.m. and 1:00 p.m., all three stations will run in sequence at 8 a.m. and 1 p.m.

When shipped from the factory, the 1st start time on program A is preset at 8:00 a.m. All others are blank. Start times can only be on the hour.

3-A: Setting up to three start times

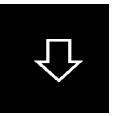
Remember, the start time number is shown as the first digit in the display. The program is the second digit, and the hour is represented by the last two digits, displaying in military time.

Press Once  and change the 1st start by pressing:  OR  
Start #1 8:00 a.m.
Program A

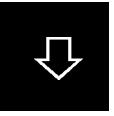
To water a second time each day, follow this step:

Press Again  and change the 2nd start by pressing:  OR  
Start #2 1:00 p.m.
Program A

To water a third time each day, follow this step:

Press Again  and change the 3rd start by pressing:  OR  
Start #3 6:00 p.m.
Program A

3-B: Removing a start time

Press  and remove the 3rd start by pressing:  OR  
Start #3 None
Program A

When the right two digits change to “--” between “23” and “00” hours, the start time is eliminated.

Note 1: If “00” shows in the display the timer will start a cycle at midnight.

Note 2: Although Program A and Program C can have different start times, all stations on A will run on **all** Program A start times, and all stations of Program C will run on **all** Program C start times.

Note 3: Remember to leave enough time between programs for all the stations to water. If you don't, the timer will simply delay the other start times until the previous cycles are completed.

How to set station run times

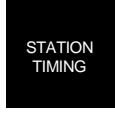
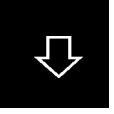
STEP 4: Set the length of watering time per station

STATION
TIMING

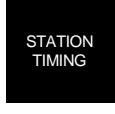
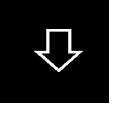
Each station on the PC-200 series can be set to water from 0-99 minutes, in one minute increments. When shipped from the factory, all stations are preset to run for 10 minutes on program A only. If a station is watering on both programs, you can set different minutes for the same station on each program.

4-A: Setting the run times per station

Remember, the station number is shown as the first digit in the display. The program is the second digit, and the run time is represented by the last two digits.

Press Once  and change station 1 by pressing:  OR   Station 1 10 minutes Program A

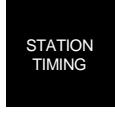
To advance to station two, follow this step:

Press Again  and change station 2 by pressing:  OR   Station 2 99 minutes Program A

Repeat this step for stations 3 through 6.

4-B: Removing a station from a program

This is the step that determines whether a station will run on program A, Program C, or both. If you do not want the station to operate, you must set the run time to "00." The timer will then skip this station.

Press Again  and remove the station by pressing:  OR   Start #3 No time Program A

When the right two digits change to 00, the station will be skipped. In this example, Program A would skip station 3 and go to station 4.

IMPORTANT! *On any program, if you do not want a station to water, you must set the station to "00." Any station not set to "00," will follow the normal program watering schedule.*

After programming the last station, the display will show "0 00." Press SET CLOCK to return to the normal time of day display: 

Step 5: Manual operation

Press Once



Station 1 should start operating and the display should change to:

Station 1 10 minutes
Program A "blinks"

The timer will now water through the cycle. You can advance to the next station by pressing "MANUAL START" again and you can stop watering by pressing "SYSTEM OFF/AUTO."

Step 6: To stop watering for rain or shutoff manual start

Press Once



and the system will shutoff, and the last digit of the time of day display will blink

Time 0 "blinks"



The timer will not operate the clock until this button is pushed again. Do not use this button as a winterization mode; if the emergency program kicks-in, the timer would try to operate the valves.

General Information

Power failures and back-up systems

In the event of a power failure, a new 9-volt battery (not included) will maintain the watering program for up to 24 hours. However, the battery will not operate the valves. When the power returns, the clock will have the approximate time and the programs should be the same.

If the power is off for longer than the battery can supply power, the entire program is lost and when the power returns, the entire display will blink "00 00". The timer is now in the "emergency back-up" mode: eight hours later, the first station will water for 10 minutes, followed by the next, etc. You'll have to reset the timer's program from step one.

When should you water?

The early morning hours just before dawn are the best hours to water. There is low evaporation, less wind, and higher water pressure. Be careful when watering mid-day, because water can act as a magnifying lens and "scorch" the grass, and use late evening watering sparingly because mildew can form overnight in humid areas.

How long should each station run? The length of watering depends on temperature, humidity, type of soil and type of landscape. Hot and dry climates require up to 2" of water on lawns per week. Cooler climates may require only 1/2" per week. Sandy soils need frequent watering, but clay soils need infrequent watering to prevent runoff. Shrubs and trees require deep but infrequent watering, and new lawns grow best under frequent short bursts of watering. See our special brochure entitled "Watering Tips" at your dealer or check at your local garden center for local conditions.

Also, it is important to remember that different types of sprinklers water at different rates. Sprayheads water more quickly (>2" per hour) but impulse and rotors water more slowly (<1/2" per hour). To check your watering rates, place a flat bottom pan at

Limits and Troubleshooting

What should be done in the winter?

If you live in an area where you don't use the timer in the winter, we recommend removing the battery, unplugging the transformer and possibly storing the timer. Do not use the "Auto/Off" rain shutdown mode because it is possible to have the "emergency program" kick-in after a power failure. If this happens, the timer will turn on your valves, which will burn out if no water is in the pipes. In addition, be sure your lines have no water left in them.

Limitations of the timer

Although the PC-200 series is a very flexible timer, there are things it will not do:

- 1) It will not operate more than one valve per station, except for the PS models, which will operate a master valve.
- 2) It will not run stations independently: all stations are tied to Program A or C.
- 3) It is not designed for outdoor installation: it is not built in a waterproof case and the transformer should not be plugged into an outdoor outlet.

If you need these capabilities, Rain Bird manufactures a variety of consumer and

Trouble-shooting

Although problems should be infrequent, sometimes solutions can be found in easily overlooked possibilities. So before you call your dealer, check here as it could save

IF YOU'RE HAVING THIS PROBLEM:	CHECK FOR THIS CAUSE AND SOLUTION
Automatic cycle won't turn on and the manual start won't operate:	<ul style="list-style-type: none">• If the display is blank, check the fuse.• If the display is OK, check the wiring.
Automatic cycle won't operate but the manual start does:	<ul style="list-style-type: none">• If the last digit blinks, the timer is in the Shutdown mode.• Press "Auto/off" to cancel• Check programming.
Automatic cycle or station doesn't turn off:	<ul style="list-style-type: none">• Check programming• This is probably a valve related problem: check the solenoid and inside the valve for obstructions.
Entire display is blank:	<ul style="list-style-type: none">• Check the fuse• Check the transformer
Part of the display won't appear:	<ul style="list-style-type: none">• Circuit problem, replace timer
Keypad doesn't respond:	<ul style="list-style-type: none">• Circuit problem, replace timer
All digits blink:	<ul style="list-style-type: none">• Power/battery failure: re-program
Fuse blows often:	<ul style="list-style-type: none">• There is a short in the wiring or wires are not waterproofed• Maximum current is being exceeded• Check amperage draw of solenoid